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Employees Gather to Learn About MAVEN

By John Putman

The Building 3 Auditorium was filled to capacity on November 14 as Goddard employees gathered to learn about the *Mars Atmosphere and Volatile Evolution* (MAVEN) mission. MAVEN is Goddard's first managed Mars mission.

Kris Brown, Special Assistant to the Director, kicked off the MAVEN overview by announcing the naming of a road near Building 32 as Landsat Road. The naming recognizes 34 years of Landsat collecting spectral information from Earth's surface, and creating a historical archive unmatched in quality, detail, coverage, and length.

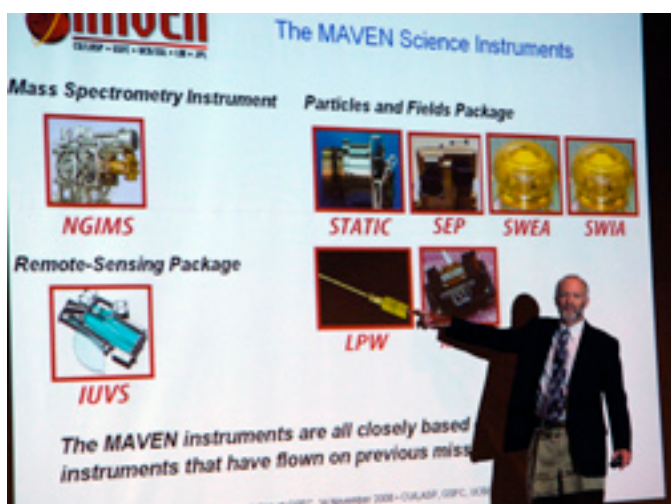
Brown went on to introduce Dave Mitchell of Goddard. Mitchell is the MAVEN Project Manager. During the introduction, Brown called MAVEN coming to Goddard, "an extraordinary win for Goddard."

Mitchell introduced the Principal Investigator for MAVEN, Dr. Bruce Jakosky of the University of Colorado Laboratory for Atmospheric and Space Physics. In his introduction, he said, "If you look up 'Mars scientist,' you'd find a picture of Bruce Jakosky."

Jakosky began his presentation by talking about Goddard. In regards to the decision to have Goddard manage the MAVEN program, he said, "Goddard had the right attitude and it was the right move." He said also that water, and perhaps life, was on Mars at some point in the past. There is also evidence that the Martian atmosphere has been lost to space.

Using the Goddard-built instruments onboard—a mass spectrometer and a magnetometer—MAVEN will obtain detailed measurements of Mars' upper atmosphere, ionosphere, planetary corona, and solar wind. These measurements will help us understand the histories of Mars' climate, liquid water, and planetary habitability.

Goddard Space Flight Center will provide project management, mission systems engineering, safety and mission assurance, and project science for MAVEN. ■



Caption: Bruce Jakosky talks about the instruments onboard MAVEN.

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Cover caption: Michael Moreau, Code 595, and his son Lance work together to plant a tree.

Photo credit: Debora McCallum.

GoddardView Info

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Deadlines: News items and brief announcements for publication in the Goddard View must be received by noon of the 1st and 3rd Wednesday of the month. You may submit contributions to the editor via e-mail at john.m.putman@nasa.gov. Ideas for new stories are welcome but will be published as space allows. All submissions are subject to editing.

Goddard Gets Down and a Little Dirty

By Trusilla Steele and Elizabeth M. Jarrell

Several Goddard employees weathered the wind and chilly temperature to make Goddard greener by participating in the Second Annual Tree Planting event on November 25, 2008. The event supports Goddard's Sustainability Program, which includes maintaining and increasing the Center's forest. Approximately 150 trees were planted on the grounds of Building 8. The trees were of such species as Dogwood, Red maple, Serviceberry, and White pine fir.

Alan Binstock, Sustainability Program Coordinator, opened the event by explaining how the tree planting supports the program's forest stewardship plan by creating 40 acres of new forest. Binstock recalled the fun that accompanied last year's event and assured participants that the real "dirty" work—the digging of holes and mulching—will be completed by Melwood Landscaping Services.



Photo credit: Debora McCallum

Caption: Alan Binstock (second from left) briefs Goddard employees.

Many participating employees welcomed the opportunity to satisfy their green thumb, enjoy the outdoors, or to plant a tree in honor of their personal sentiments. Veronica Stubbs, Code 200, planted a tree in honor of herself and her deceased son Darrin. Stubbs stated "Given Darrin's love of nature, this is a perfect way to honor him and adds joy to my coming to work." Irene Tzinis, Code 504, who had never planted a tree before, felt this was a fun and great opportunity to have a permanent part of the grounds of Goddard. Dr. Michael Moreau, Code 595, came out on his day off to provide a great activity for his four-year old son, Lance, who loves to dig. Lourdes Wisniewski, Code 501, planted a tree for each member of her family. Wisniewski expressed how meaningful it is to have a lasting sentiment in their honor and is excited to show them on their next visit. As a result of the tree planting, there is a wealth of memories on the grounds of Goddard.

Later that afternoon, Dr. Sara Tangren, a soil science expert from Chesapeake Natives, instructed approximately 34 fifth and sixth graders from The Friends Community School, College Park, Md., and a few college students and volunteers from the University of Maryland, College Park, in planting a

pilot meadow near the Building 8 parking lot. The pilot meadow is part of Goddard's site sustainability program, which will, over time, convert 85 acres of lawn into meadows.



Photo credit: Debora McCallum

Caption: Goddard employees grab trees to start planting.

Chesapeake Natives, a nonprofit organization dedicated to preserving plants native to the Chesapeake region, donated the plants. Chesapeake Natives' mission statement explains that they exist, "To protect, propagate, and promote plants native to the Chesapeake watershed." The Maryland Department of Plant Sciences and Landscape Architecture at the University of Maryland donated the space for propagating the plants.



Photo credit: Alan Binstock

Caption: Students from Friends Community School have fun planting a pilot meadow.

Tangren explained to the students that a meadow is a mix of native grasses and flowers. She selected locally native plants, which are plants that existed in the local area before the arrival of any Europeans. Many of these plants were grown from seeds taken from meadows very close to Goddard. Dr. Tangren further explained that the importance of a meadow is both to prevent soil erosion and to support local birds, insects, and wildlife. Species reports for various local plants and additional information can be found on the Chesapeake Natives Web site: <http://www.chesapeakenatives.org>. ■

Goddard Standouts Receive 2008 Presidential Rank Awards

By Crystal Gayhart

Each year, the President of the United States honors a select group of career members from the Senior Executive Service (SES), Senior Level (SL), and Scientific and Technical (ST) corps for their outstanding leadership accomplishments and service in some of the Nation's most critical positions in the Federal Government.

These senior executives and senior professionals are outstanding leaders who consistently demonstrate strength, integrity, industry, and a relentless commitment to public service. Through their personal conduct and results-oriented leadership, they have earned and kept a high degree of public confidence and trust. Senior executives and senior professionals from across the Government are nominated by their Agency heads, evaluated by citizen panels, and, finally, approved by the president.

There are two categories of rank awards, Meritorious and Distinguished, with Distinguished being the highest honor that can be bestowed by the president. For the FY08 performance period, Mr. Arthur F. Obenschain was the Goddard recipient bestowed the highest honor of Distinguished Senior Professional as a member of the SES corps. Dr. John C. Mather was the Goddard recipient bestowed the highest honor of Distinguished Senior Professional as a member of the ST corps. In addition, Mr. Dennis J. Andrucyk, Ms. Valorie A. Burr, and Mr. Nicholas G. Chrissotimos were recognized with the Meritorious Presidential Rank Award.

Arthur F. Obenschain (Distinguished SES Award Recipient)



Caption: Rick Obenschain.

Obenschain has dedicated more than 40 years of service to Goddard. Since July 2007, he has served as Goddard's Deputy Center Director and, with the Center Director, is responsible for Goddard's scientific, programmatic, and financial management. Prior to that, he assumed two major leadership roles at Goddard. These roles included serving as Director of the Flight Projects Directorate (FPD) and as the Director of the Applied Engineering and Technology Directorate (AETD). He has held multiple management positions including Deputy Director of AETD, Chief of the Electrical Systems Center, and Project Manager for several of Goddard's largest projects in the FPD, including the *Geostationary Operational Environmental Satellite*, *Landsat*, and Earth Science Data and Information Systems. Obenschain has also served as the *Space Station Freedom* (SSF) Work Package 3 Deputy Project Manager and effectively transitioned the SSF work content into the *Earth Observing System* payload

project, providing an integrated project structure that led directly to NASA's major Earth Science Missions—*Terra*, *Aqua*, and *Aura*.

Obenschain earned his Bachelor of Science degree in electrical engineering from the University of Maryland. He has been awarded the American Institute of Aeronautics and Astronautics von Braun Award for Excellence in Space Program Management, the Goddard Award of Merit, NASA's Exceptional Service Medal, NASA's Outstanding Leadership Medal, NASA's Equal Employment Opportunity Medal, the Distinguished Service Medal (NASA's highest award), and the Presidential Rank Award for Meritorious Executive.

Dr. John C. Mather (Distinguished ST Award Recipient)



Caption: John Mather.

Mather serves as the Senior Astrophysicist for Cosmology in the Astrophysics Science Division in the Sciences and Exploration Directorate, and was the driving force behind the *Cosmic Background Explorer* (COBE) satellite. The Nobel Prize in Physics for 2006 went jointly to Mather and George F. Smoot of the University of California, Berkeley. As a postdoctoral fellow in 1974, Mather organized the COBE proposal, and, as Project Scientist and one of the three Principal Investigators, was responsible for the engineering design of the mission as well as for the scientific results. His leadership was responsible for the entire mission, from concept to ultimate success. Since 1995, Mather has served as the *James Webb Space Telescope* (JWST) Study Scientist and Senior Project Scientist at Goddard. In this role, he provides scientific leadership for every part of the JWST project. The concept for the mission was developed under his leadership.

In 2007, he was selected as the Chief Scientist of the Science Mission Directorate at NASA Headquarters by the NASA Administrator, where he is responsible for program balance across all four of NASA's scientific themes: astrophysics, Earth science, heliophysics, and planetary science.

Dennis J. Andrucyk (Meritorious SES Award Recipient)

Andrucyk serves as Deputy Director of the Applied Engineering and Technology Directorate at Goddard. He is responsible for the full range of engineering expertise needed to enable end-to-end conceptualization, development, and use of Earth and space science missions, including the delivery of appropriate science products. He has served as the Chief of the Information Systems Division, Associate Chief of Goddard's Electrical Engineering Division, as Goddard's Chief Technologist, as Theme Director and Chief of

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Goddard Standouts Receive 2008 Presidential Rank Awards

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Photo credit: Debora McCallum

Caption: Dennis Andrucyk.

Outstanding Leadership Award, and was selected to be one of Goddard's Senior Fellows in recognition of his superior technical contributions. He has been sought out to represent the United States as one of three voting members in the North Atlantic Treaty Organization and was also one of the original members of the United States Space Technology Alliance.

Andrucyk's technical background began at the National Security Agency (NSA) in 1977. From the NSA, he moved to the Naval Research Laboratory, Westinghouse Electric, General Electric, and then Northrop before joining NASA in 1988. He earned a Bachelor of Science degree in electrical engineering from the University of Maryland.

Valorie A. Burr (Meritorious SES Award Recipient)



Photo credit: Debora McCallum

Caption: Valorie Burr.

Burr is the Associate Director for Acquisitions at Goddard and has been a member of the Management Operations Senior Staff since January 2003. In this capacity, she has functional responsibility for all aspects of procurement and operational acquisition support to both NASA Headquarters and Goddard. She sets strategic direction and policy and is responsible for almost 200 civil service employees who are engaged in the planning, formulation, implementation, and closeout of contractual arrangements, ranging from simplified acquisitions and grants to complex research and development contracts totaling nearly \$4 billion. She is responsible for developing long-range plans as well as operational, budget, reporting, and work processing procedures in order to create and maintain healthy internal operations in support of Agency requirements.

NASA Headquarters Mission and Science Measurement Division, and as the Chief of the Mission Engineering and Systems Analysis Division. Along the way, he has been recognized for his stellar technical and managerial efforts with NASA's Outstanding Leadership Medal, the Exceptional Achievement Medal, Goddard's

Ms. Burr is a graduate of the Agency's Senior Executive Service Career Development Program, completing numerous assignments outside the procurement organization, including Center developmental assignments in information technology, applied engineering and technology, human resources, and education. She is a member of the Center's Diversity and Program Management Councils, NASA's Shared Services Center Team, and the Procurement Steering Committee. She has led and participated in special programs and projects, including the Zero-Based and Strategic Resources Reviews, the Presidential Quality Award, Contractor and Center Safety Councils, Equal Opportunity, and Leadership Training, where she received awards and recognition. Her organization was formally recognized in October 2006 by the Center's Contractor Council as the "unsung hero" behind the success of the Agency's major programs and projects.

Nicholas G. Chrissotimos (Meritorious SES Award Recipient)

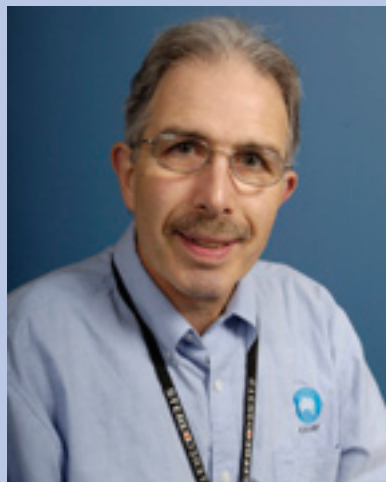


Photo credit: Debora McCallum

Caption: Nicholas Chrissotimos.

Chrissotimos serves as the Associate Director for Heliophysics Projects Division within the Flight Projects Directorate at Goddard. He is responsible for the management, coordination, and implementation of heliophysics missions in support of the NASA Headquarters Science Missions Directorate. As Associate Director for the Exploration and Space Communications Projects (EandSCP) Division, he led in managing the Agency's Near Earth Network, the development of the next generation *Tracking Data Relay Satellite*, Express Logistics Carriers (ELC), and the *Lunar Reconnaissance Orbiter* (LRO) with a budget that exceeded \$300 million. The Near Earth Network provides space communications for the Space Shuttle program, the *International Space Station* (ISS), Earth orbiting scientific satellites, and the Department of Defense. He served in that position for two years after serving as the Living With a Star Program Manager and *Solar Terrestrial Relations Observatory* (STEREO) Project Manager.

He also is responsible for Goddard's support to the Constellation Program, which includes Orion, a new manned vehicle, and Ares, the launch vehicle that will launch Orion into orbit.

Chrissotimos has a Bachelor of Science degree in electrical engineering from Pratt Institute in New York and a Master of Science degree in electrical Engineering from the University of Maryland, College Park. Chrissotimos is a recipient of the NASA Medal for Outstanding Leadership and Goddard's Exceptional Achievement Award. ■

Firefly CubeSat Mission to Study Link Between Lightning and Terrestrial Gamma Ray Flashes

By Laura Layton

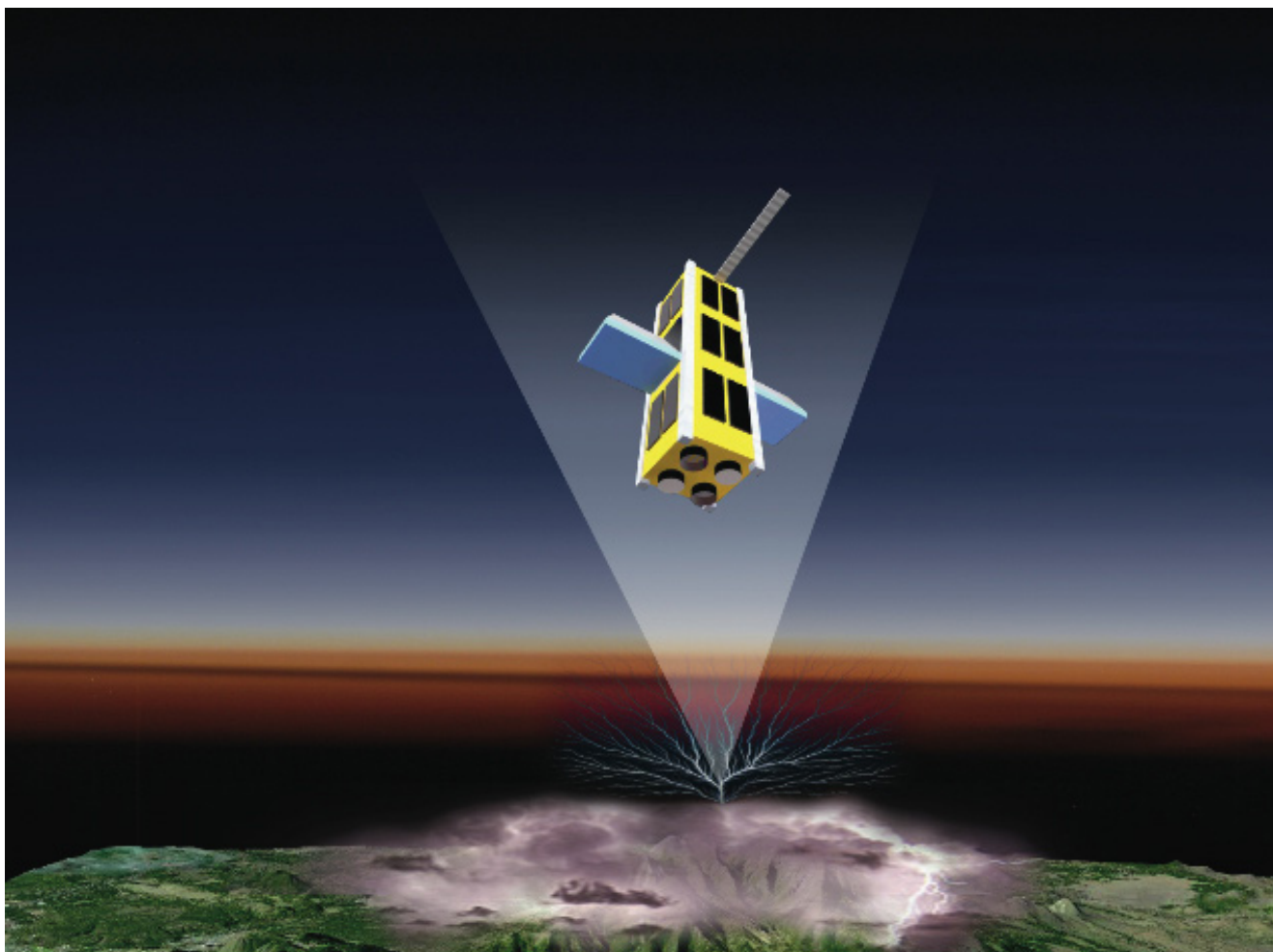


Image Credit: USRA

Caption: The Firefly CubeSat satellite will investigate terrestrial gamma ray flashes (TGFs) when it launches in 2010.

Massive energy releases occur every day in the upper reaches of Earth's atmosphere. Lightning may give rise to these bursts of radiation. Unlike the well-known flashes of light and peals of thunder familiar to Earth-dwellers, however, these energy releases are channeled upward and can be detected only from space. Our atmosphere protects us from the effects of this radiation, but the mechanisms at work can impact Earth's upper atmosphere and its space environment.

A new nano satellite mission, called *Firefly*, sponsored by the National Science Foundation (NSF) and led by NASA's Goddard Space Flight Center in Greenbelt, Md., will explore the relationship between lightning and these sudden bursts, called terrestrial gamma ray flashes (TGFs).

NASA's *Compton Gamma Ray Observatory* (CGRO) first discovered TGFs in the 1990s. Designed to look outward at cosmic sources of gamma rays, CGRO also caught rare but tantalizing glimpses of gamma rays coming from Earth.

TGFs are likely produced by beams of very energetic electrons, which are accelerated in the intense electric fields generated by large thunderstorm

systems. Before CGRO, many scientists thought these very energetic types of radiation could be generated only near the Sun, or in black holes, large galaxies, or neutron stars.

"These electron beams are more powerful than any produced in near-Earth space, and understanding their acceleration mechanisms will shed light on a physical process that may occur on other planets, or in astrophysical environments, as well as in the Sun's corona," said Doug Rowland, Principal Investigator for the *Firefly* mission at NASA Goddard's Space Weather Laboratory.

Firefly will explore which types of lightning produce these electron beams and associated TGFs. In addition, *Firefly* will explore the occurrence rate of TGFs that are weaker than any previously been studied. The result will be a better understanding of the effect that the millions of lightning flashes that occur worldwide each day have on the Earth's upper atmosphere and near-Earth space environment.

"This mission could provide the first direct evidence for the relationship between lightning and TGFs, and addresses an important research question

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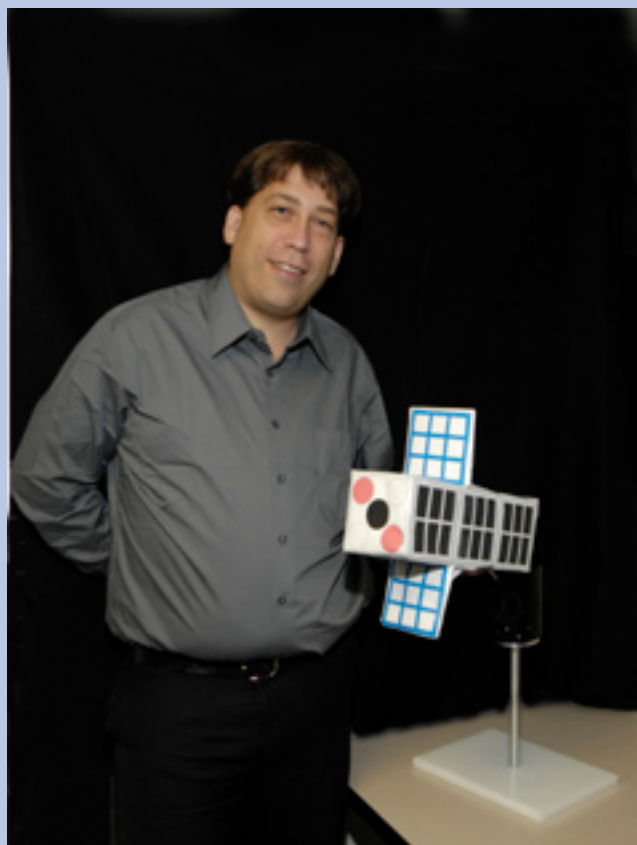


Photo Credit: Pat Izzo

Caption: Doug Rowland, Principal Investigator for Firefly stands next to an actual size model of the nanosatellite.

in atmospheric electricity," said Anne-Marie Schmoltner, head of NSF's Atmospheric Sciences Division's Lower Atmosphere Research Section. "Identifying the source of terrestrial gamma ray flashes would be a great step toward fully understanding the physics behind lightning and its effect on the Earth's atmosphere."

The NSF CubeSat program represents a new low cost access to space approach to performing high-quality, targeted science on a smaller budget than is typical of larger satellite projects, which have price tags starting at \$100 million. In contrast, the CubeSat *Firefly* will carry out its science mission in a much smaller package and at a considerably lower cost. The nano satellite is about the size of a football (4 by 4 by 12 inches). The cost to develop, launch, and operate *Firefly* for three years during its science mission is expected to be less than \$1 million.

The *Firefly* mission also emphasizes student involvement as part of the ongoing effort to train the next generation of scientists and engineers. Students at

Siena College, in Loudonville, N.Y., and the University of Maryland, Eastern Shore, in Princess Anne, Md., will be involved in all phases of the *Firefly* mission.

"Integrating innovative and creative educational efforts with front-line research is what NSF is all about," said NSF Deputy Director Kathie L. Olsen. "The new CubeSat program uses the transformational technology of CubeSats to do just that. The *Firefly* mission is a terrific example of a program that will pursue scientific discovery, while providing unique and inspiring educational opportunities."

Firefly is funded and managed by the National Science Foundation, and will be developed as a collaborative effort by NASA Goddard Space Flight Center; Universities Space Research Association (USRA), Columbia, Md.; Siena College; University of Maryland Eastern Shore; and the Hawk Institute for Space Sciences, in Pocomoke City, Md.

Goddard, USRA, and Siena College will provide the instrument payload, while the Hawk Institute will build the CubeSat. NASA's Wallops Flight Facility on Wallops Island, Va., will provide technical oversight for the integration of *Firefly* to the launch vehicle.

Firefly's launch date is likely to be in 2010 or 2011. The micro satellite will fly as a secondary payload inside a Poly-Picosatellite Orbital Deployer (P-POD) provided by California Polytechnic State University, San Luis Obispo, Calif. *Firefly* will utilize the excess room and lift capacity not required by the primary mission payload.

For more information about NASA's *Compton Gamma Ray Observatory*, visit: <http://heasarc.gsfc.nasa.gov/docs/cgro/index.html>. ■

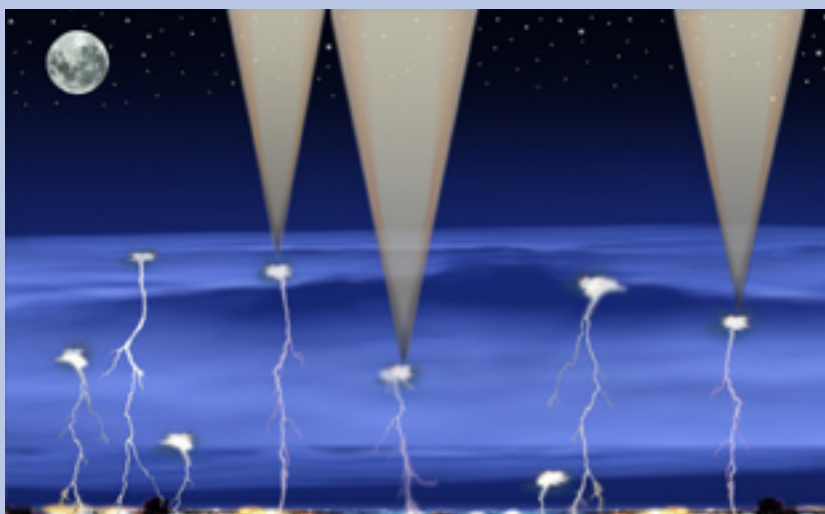


Image Credit: NASA

Caption: Scientists theorize that TGFs are linked to lightning and result when high-energy electrons are accelerated upward over thunderstorms.

Employee Spotlight: Barabra Lambert

By Christina Coleman



Caption: Barabra Lambert.

"You don't have to be a rocket scientist to work at NASA. I try to explain that to the students." These are wise words from someone with a degree in education, acts in commercials, works as an extra for movies, and takes photographs of satellites at NASA.

With an unconventional resume, Barbara Lambert breaks the engineering mold and serves as an integral and very resourceful part of NASA Goddard Space Flight Center, specifically to the *Solar Dynamics Observatory* (SDO), as a photographer.

SDO, which is scheduled to launch late next year will help scientists look inside the Sun and study where solar storms are born.

"The satellite will capture and download an unprecedented amount of data everyday," explains Lambert. The information collected will be so voluminous that SDO will produce enough data to fill a single CD-ROM every 36 seconds.

Lambert photographically documents the building, testing, and integration of flight hardware on SDO.

In fact, without the photographs of the hardware and mechanical systems, it is extremely difficult to refer back to a certain stage of building. If something goes wrong, the photographs are there as proof for the engineers and may reveal a problem that wasn't noticed before.

"I can't even count how many times having a good photo prevents us from having a wild goose chase," explains Robert Lilly, the Deputy Project Manager for SDO. "I knew from working on the *Hubble Space Telescope* how important having good photo documentation was. When we found out she was available, we grabbed her to be in charge of all the photo documentation for SDO."

Lambert has acquired a great appreciation for the engineers, scientists, and astronauts involved in supporting a mission from her 12 years working on the *Hubble Space Telescope*. Through training, she became certified to work in a variety of environments, such as clean rooms, launch pads, and the Payload Operations Control Center in Houston, Texas. Lambert was even inspired to get certified in scuba diving when she assisted with training the astronauts to take pictures during the telescope repair missions. Astronauts train for spacewalks in a giant swimming pool called the Neutral Buoyancy Laboratory at NASA's Johnson Space Flight Center. The pool simulates a weightless environment similar to what astronauts would experience in space. Lambert ensured that the image area captured in the photographs could be used for real-time analysis and training for future missions.

"She is absolutely dedicated," says Lilly. "She will work nights, weekends, whatever it takes to get the job done."

When she isn't learning the ins and outs of SDO, Lambert is a member of Education Outreach. With her background in education, she makes it her duty to inspire the next generation of scientists, engineers, astronauts, and more.

Lambert got her degree in education from Frostburg State University in Frostburg, Md., and didn't know that she would ever become a photographer, let alone work for NASA. Before her first position at Goddard, Lambert was a substitute teacher.

"I was very nervous coming to work for NASA," she says. "I was way out of my comfort zone."

After 27 years, most of which was spent photographing flight hardware systems and assisting with astronaut training for the *Hubble Space Telescope*, she can't picture herself any where else.

"I have had the most exciting ride," Lambert says. "I get the opportunity to see all aspects of a mission and work with amazingly talented and dedicated people everyday." ■

Photo Credit: Chris Gurn